

AMENDMENTS TO CLAIMS

Claims 1-16 (Cancelled)

17. (New) A routing system for a field programmable gate array for connecting a first tile and a second tile in a Field Programmable Gate Array wherein said first tile comprises a first plurality of functional groups arranged in rows and columns, and a first plurality of interface groups wherein each of said first plurality of interface groups comprises a plurality of input ports and a plurality of output ports and each of said first plurality of interfaces groups is connected to an end of one of said rows and said columns of said first plurality of functional groups and wherein said second tile comprises a second plurality of functional groups arranged in rows and columns, and a second plurality of interface groups wherein each of said second plurality of interface groups comprises a plurality of input ports and a plurality of output ports, wherein said routing system comprises:

a first set of routing conductors configured to transfer signals from said plurality of outputs of each of said first plurality of interface groups of said first tile to said plurality of input ports of said second plurality of interface groups of said second plurality of interface;

said first set of routing conductors comprising:

a plurality of horizontal conductors connected to said outputs of said first plurality of interface groups along each end of said columns of said first plurality of functional groups and said plurality of inputs of said second plurality of interface groups of said second tile along each end of said columns of said second plurality of functional groups of said second tile.

a plurality of vertical conductors connected to said outputs of said first plurality of interfaces groups along ends of said rows of said first plurality of functional groups in said first tile and said inputs of said second plurality of interface groups along ends of said rows of said second plurality of functional groups in said second tile wherein each of said plurality of vertical conductors form an intersection with one of said plurality of horizontal conductors; and

a plurality of programmable interconnect elements wherein each of said plurality of programmable interconnect elements is located at one said intersection of said plurality of vertical conductors and said plurality of horizontal conductors in a diagonal orientation thus connecting each one of said plurality of horizontal conductors to one of said plurality of vertical conductors.

18. (New) The routing system of Claim 17 further comprising:

a second set of routing conductors configured to transfer signals from said plurality of outputs of said second plurality of interface groups of said second tile said input ports of said first plurality interface groups in said first tile wherein said second set of routing conductors comprises:

a second plurality of horizontal conductors connected to said outputs of said second plurality of interface groups along each end of said columns of said second plurality of functional groups and said plurality of inputs of said first plurality of interface groups of said first tile along each end of said columns of said first plurality of functional groups of said first tile;

a second plurality of vertical conductors connected to said outputs of said second plurality of interfaces groups along ends of said rows of said second plurality of functional groups in said second tile and said inputs of said first plurality of interface groups along ends of said rows of said first plurality of functional groups in said first tile wherein each of said second plurality of vertical conductors form an intersection with one of said second plurality of horizontal conductors; and

a second plurality of programmable interconnect elements wherein each of said second plurality of programmable interconnect elements is located at one said intersection of said second plurality of vertical conductors and said second plurality of horizontal conductors in a diagonal orientation thus connecting each one of said second plurality of horizontal conductors to one of said plurality of second vertical conductors.

19. (New) The routing system of Claim 18, wherein said second plurality of programmable interconnect elements are arranged from an upper left corner of said intersections of said second plurality of vertical conductors and said second plurality of horizontal conductors.

20. (New) The routing system of Claim 17, wherein said plurality of programmable interconnect elements are arranged diagonally from the upper right corner of intersections of said plurality of vertical conductors and said plurality of horizontal conductors.

21. (New) The routing system of Claim 17, wherein said first set of routing conductors are further configured to transfer signals from said plurality of output ports of said second plurality of interface groups to an Input/Output of said field programmable gate array.

22. (New) The routing system of Claim 17, wherein said first set of routing conductors are further configured to transfer signals from said plurality of output ports of said second plurality of interface groups of second tile to at least one RAM in said field programmable gated array.